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ABSTRACT

The decisions and attitudes of sex-stereotyped and androgynous individuals (as defined by the Pem Sex Role Inventory) were compared in a social conformity paradigm and on two measures of locus of control. The conformity paradigm consisted of 160 trials in which subjects predicted one of two possible stimuli after hearing predictions of two other "subjects." On trials when the confederates predicted the same stimulus, stereotypic females conformed significantly more often than androgynous females and stereotypic males. In a post-experimental questionnaire, stereotypic females indicated that they had been the most influenced, whereas androgynous females reported the least amount of influence from others. Stereotypic subjects of both sexes admitted to holding significantly more traditional sex-role attitudes than androgynous subjects. Results from the Rotter I-E Scale indicated only that males scored significantly more internal than females. However, data from Coan's Personal Opinion Survey showed that androgynous females were reliably more internal than stereotypic females on six of the seven factors. Implications of these data are discussed with regards to traditional sex effects in the social conformity and locus of control literature. (Author)

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Relationships Between Psychological Androgyny, Social Conformity, and Perceived Locus of Control[1]

by

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Abstract

The decisions and attitudes of sex-stereotyped and androgynous individuals (as defined by the Bem Sex Role Inventory) were compared in a social conformity paradigm and on two measures of locus of control. The conformity paradigm consisted of 160 trials in which subjects predicted one of two possible stimuli after hearing predictions of two other "subjects". On trials when the confederates predicted the same stimulus, stereotypic females conformed significantly more often than androgynous females and stereotypic males (N=30 per group). In a post-experimental questionnaire, stereotypic females indicated that they had been the most influenced, whereas androgynous females reported the least amount of influence from others. Stereotypic subjects of both sexes admitted to holding significantly more traditional sex-role attitudes than androgynous subjects. Results from the Rotter I-E Scale indicated only that males scored significantly more internal than females. However, data from Coan's Personal Opinion Survey showed that androgynous females were reliably more internal than stereotypic females on 6 of the 7 factors. Implications of these data are discussed with regards to traditional sex effects in the social conformity and locus of control literature.

Relationships Between Psychological Androgyny, Social Conformity, and Perceived Locus of Control

The use of sex as an independent variable is pervasive in the psychological research literature. However, recent concerns regarding sex-role stereotyping include suggestions that observations of differential behavior as a function of physical sexuality may be misleading and self-defeating. That is, the terms "male" and "female" may obscure important underlying variables that are responsible for differences found and generally reported as "sex differences". For example, the extent to which an individual adheres to a particular sex-role stereotype may be more predictive of his/her behavior in a given situation than is his/her physical sexuality. The concept of "androgyny" offers an alternative to viewing masculinity and femininity as bipolar extremes of a single continuum. From the Greek "andro" for male and "gyn" for female, androgyny defines a condition under which individuals do not rigidly adhere to role characteristics of their sex (Heilbrun, 1973).

A majority of the traditional social-conformity studies that have examined sex differences have found females to demonstrate greater conformity than males (e.g., Allen & Crutchfield, 1963; Crutchfield, 1955; Iscoe & Williams, 1963; Tuddenham, 1958). On the other hand, several more recent investigations of social conformity have not found consistent sex differences. For example, some researchers have found an interaction between sex of subject and sex appropriateness of task (e.g., Sistrunk & McDavid, 1971), whereas others have found no sex differences (e.g. Constango & Shaw, 1966; Klein, 1972; Sams, 1974). It is possible that

rapidly changing sex-role expectations contribute to this recent divergence from the traditional social conformity finding. Differentiating the social conformity behavior of sex-role stereotyped and non-sex-role stereotyped individuals was a major goal of the present research.

Bem (1975) investigated the potential effects of sex-role stereotyping on behavior in a conformity paradigm, and found that non-sex-role stereotyped females displayed "masculine independence when under pressure to conform" (p. 642). Stereotypic females conformed at a significantly higher level than did stereotypic males, non-stereotypic males and non-stereotypic females, who did not differ significantly from one another in terms of level of conformity. Bem used a modified Crutchfield (1955) paradigm, placing subjects in individual booths equipped with microphones and earphones, and then showing them a series of cartoons to rate for funniness. (Half of the cartoons had been previously rated by independent judges as very funny and half as very "unfunny".) As each new cartoon appeared on the screen, the subject heard the experimenter call on each person in turn for his or her rating. Although the subjects believed that they were hearing each others' voices, they were, in fact, hearing a tape recording. Bem defined conformity as the proportion of times that a subject agreed with the other "subjects" by rating a funny cartoon as unfunny and vice versa.

Bem's use of the modified Crutchfield conformity paradigm may be criticized on at least two counts. First, frequent occurrences of majority judgments that are at variance with ones sensations not only detract from mundane realism (Aronson & Carlsmith, 1968), but may also result in an artifact due to subject's suspiciousness of the experimenter's

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Bem's use of the modified Crutchfield conformity paradigm may be criticized on at least two counts. First, frequent occurrences of majority judgments that are at variance with ones sensations not only detract from mundane realism (Aronson & Carlsmith, 1968), but may also result in an artifact due to subject's suspiciousness of the experimenter's

intent (McGuire, 1969). The susceptibility of the Crutchfield (1955) paradigm to a suspiciousness artifact is illustrated by the reports of Allen and Levine (1969, 1971) that a prominent percentage of subjects admitted their knowledge of experimental deception in post-experimental interviews. Futhermore, some investigators have questioned the ethics of conformity studies that put social pressure on subjects to reject their natural sensory experience (Nosanchuk & Lightstone, 1974). The conformity paradigm used in the present study modelled after Geller (1975) attempted to overcome these difficulties with traditional conformity paradigms.

The present study was also designed to investigate relationships between physical sex, adherence to a sex-role stereotype, and perceived locus of control. Generally, when sex differences are reported for studies investigating locus of control it is found that females score more external than males (e.g., Nowicki & Hopper, 1974; Staats, 1974). It is also apparent that sex often moderates relationships between locus of control and other behaviors. For example, internal locus of control was related to a variety of achievement behaviors for males but not for females (e.g., Nowicki & Roundtree, 1971). Thus the present study investigated relationships between subjects' adherence to a sex-role stereotype, as determined by the Bem (1974) Sex Role Inventory, and their perceived locus of control, as assessed by the Rotter (1966) and Coan (1974) internal-external scales.

Method

Subjects. Volunteers from Introductory Psychology classes at Virginia Polytechnic Institute and State University were pre-tested on

the Bem (1974) Sex Role Inventory (BSRI), the Rotter (1966) Internal-External Control Scale, and the Coan (1972) Personal Opinion Survey (POS). Based upon Bem's (1976) revision of the scoring procedure for the BSRI, 33% of all subjects tested (N=734) were classified as Androgynous, 42% as Stereotypic, 15% as Undifferentiated, and 10% were Cross-sexed. This distribution is consistent with Bem's (1976) results.

Four groups of 30 subjects each were defined on the basis of BSRI scores. Androgynous Females were those females who scored higher than the median on both masculine (median = 4.55) and feminine (median = 4.90) scales of the BSRI; Androgynous Males were males who scored higher than the median on both masculine and feminine scales; Stereotypic Females were females who scored higher than the median on the feminine scale and lower than the median on the masculine scale; and Stereotypic Males were males who scored higher than the median on the masculine scale and lower than the median on the feminine scale.

Procedure. Subjects were telephoned and asked to participate in a psychology experiment entitled "Stimulus Prediction", for which they received a voluntary research credit towards their grade in Introductory Psychology. The experimenter and one confederate, posing as a subject, arrived at the experimental room (5.33m x 3.96m) fifteen minutes before the subject was scheduled to arrive. This confederate (C2) always occupied the middle of three adjacent chairs facing a rear-projection screen; this ensured that the subject would sit on one of the end chairs. At approximately three minutes after the subject had arrived, the second confederate (C1) arrived and sat in the remaining chair. Equal numbers of subjects in each sex-sex role condition were randomly assigned to the

three possible sex combinations of confederates (i.e., both male, both female, or one female and one male). Experimental sessions for the mixed sex confederates were balanced so that 50% of the time C1 was male and 50% of the time C1 was female. The sex of the experimenter was balanced across all conditions.

The task instructions asked that the subjects predict the occurrence of one of the two possible stimulus alternatives by verbalizing "up" for an arrow pointing upwards or "down" for an arrow pointing downwards. Instructions were skill-oriented in that subjects were told that the stimuli may show a pattern and an awareness of this stimulus patterning could lead to greater prediction accuracy. C1 was always designated as "subject number one" and therefore was the first to predict, followed by C2 "subject number two" and then the real subject, "subject number three".

The sequence of 160 stimulus presentations was derived from a random number table with the restrictions that for each block of 40 trials no stimulus repeated on more than three consecutive trials, and each stimulus appeared on exactly 50% of the trials. Also, within each 40-trial block, 70% of each stimulus alternative was presented against a green background and 30% was presented against a yellow background.[3]

For each subject the same prearranged predict on sequence was followed by the two confederates, as controlled by the experimenter's unobtrusive hand signals. The confederates agreed with each other on 50% of the trials for each block of 40 trials. For the first two trial blocks each confederate was correct on 50% of the trials, whereas for the latter two 40-trial blocks each confederate predicted correctly on 75% of the trials.

Following the prediction task the subjects and the confederates completed a questionnaire[4] and information form. Then the subjects were asked if they had any suspicions regarding the true nature of the experiment and if they had heard anything about the experiment from any other students who participated earlier. Subjects were then debriefed and C1 and C2 were revealed as confederates who were working with the experimenter. Subjects were asked not to discuss the experiment with anyone else.

Results

Conformity Behavior. Debriefing and post-experimental questioning revealed that no subject was aware that the "other subjects" were confederates of the experimenter. Most subjects reported that the purpose of the experiment was to determine how well an individual could recognize patterns and predict the occurrence of the stimuli shown on the screen. Thus, no subjects were discarded and replaced because of a suspiciousness artifact.

The percentage of trials that each subject agreed with both confederates (e.g., on trials when the confederates predicted the same stimulus) was averaged within trial blocks and analyzed according to the factorial of 2 (Sex of subject) x 2 (BSRI Category: Androgynous vs. Stereotypic) x 3 (Sex Combinations of Confederates: female-female; male-male; female-male) x 4 (Consecutive blocks of 40 trials). The analysis of variance showed a significant main effect of trial block, $F(3,324) = 48.90$, $p < .001$ and a significant Sex of Subject x BSRI Category interaction, $F(1,108) = 4.90$, $p < .05$. No other effects were reliable,

all ps > .10. Figure 1 illustrates the trial block effect, demonstrating that the proportion of conforming decisions increased over trial blocks for all groups (especially between Trial Blocks 2 and 3). Stereotypic females demonstrated the highest overall level of conformity (mean = 64.3%) and stereotypic males demonstrated the lowest level of conformity (mean = 55.8%). The simple effects analyses (with the error estimate from the overall analysis) showed that stereotypic females conformed significantly more often than androgynous females, $F(1,108) = 4.17$, $p < .05$ and the stereotypic males, $F(1,108) = 5.67$, $p < .05$, but not more often than the androgynous males ($p > .25$). The percent conformity for androgynous females, androgynous males and stereotypic males was not significantly different (all ps > .10).

Insert Figure 1 About Here

Conformity was also analyzed by calculating the frequency of subjects in each sex-sex role configuration who agreed with both confederates more often than chance (i.e. on more than 59% of the "conformity" trials). The z-test for the difference between two independent proportions revealed data consistent with the analysis of variance of subjects' conformity decisions. That is, the proportion of stereotypic females who reached above chance levels of conformity (i.e. 70%) is significantly greater than 40% which indicated the proportion of androgynous females, androgynous males and stereotypic males that conformed on more than 59% of the trials ($z = 1.67$, $p < .05$, one-tailed).

Questionnaire Data. The post-experimental questionnaire used 8-point bipolar scales on which subjects were asked to indicate the extent to which certain personal characteristics or properties of the experimental task pertain to them. For example, a scale would be headed by a phrase such as "In this experiment, I felt". . . . and subjects would respond by circling a number on the 8-point scale were 1 indicated "influenced by others" and 8 indicated "uninfluenced by others". For this item, regarding perceived influence during the experimental task, a main effect for BSRI Category, $F(1,108) = 5.940$, $p < .05$ and a significant Sex of Subject x BSRI Category was obtained, $F(1,108) = 7.59$, $p < .01$. Pairwise comparisons showed that androgynous females reported being significantly less influenced than did stereotypic females, $F(1,108) = 13.48$, $p < .001$, stereotypic males, $F(1,108) = 8.11$, $p < .01$, and androgynous males, $F(1,108) = 9.43$, $p < .01$. There were no significant differences between the other groups (all $ps > .10$).

For the item regarding how traditional an individual perceived his/her sex-role attitude to be, a main effect for BSRI Category was obtained, $F(1,108) = 4.54$, $p < .05$. No other effects were reliable, all $ps > .10$. The main effect of BSRI Category indicated that androgynous subjects reported themselves as significantly less traditional than stereotypic subjects (means of 3.5 vs. 4.2). The analysis for the question referring to one's support of the Women's Liberation Movement showed no effects (all $ps > .10$).

Locus of Control. Subjects scores on the Rotter Internal-External Scale were analyzed according to the factorial of 2(Sex of Subject) x 2(BSRI Category: Androgynous vs. Stereotypic). The analysis indicated

a significant main effect for sex, F (1,116) = 10.38, $p < .01$, showing that males scored reliably more internal than females (mean numbers of external choices = 9.6 vs. 11.7). No other effects were reliable, all $ps > .10$.

Scores on Coan's Personal Opinion Survey (POS) were analyzed by multivariate analysis of variance. Wilks' Lambda test criterion (Cooley & Lohnes, 1971) showed a significant main effect for sex of subject across the seven factors, $F(7,112) = 5.33$, $p < .001$, a significant main effect for BSRI Category across the seven factors, $F(7,112) = 4.00$, $p < .001$, and a significant Sex of Subject x BSRI Category interaction $F(7, 112) = 7.52$, $p < .001$. The analysis also revealed very low correlations between the seven factors of the POS (only 6 of the 21 correlations reached significance at the .05 level, Range = -.006 to .475, Median = .129).

The separate 2 (Sex of Subject) x 2 (BSRI Category) analysis for each of the factors on the POS indicated the following significant results ($ps < .05$):

Factor 1 ("Achievement through conscientious effort") - a significant main effect of BSRI category, $F(1,116) = 6.76$, $p < .05$, androgynous subjects scoring more internal than stereotypic subjects.

Factor 2 ("Personal confidence in ability to achieve mastery") - a significant main effect of sex, $F(1,116) = 27.21$, $p < .001$, and a significant BSRI Category x Sex interaction, $F(1,116) = 23.55$, $p < .001$. The main effect resulted from males scoring more internal than females. Pairwise comparisons showed that stereotypic males scored more internal

than androgynous males, $F(1,116) = 7.30$, $p < .01$, and androgynous females scored more internal than stereotypic females, $F(1,116) = 17.31$, $p < .001$.

Factor 3 ("Capacity of mankind to control its destiny vs. supernatural power or fate") - a significant main effect of sex, $F(1,116) = 8.73$, $p < .01$, males scoring more internal than females.

Factor 4 ("Successful planning and organization") - a significant Sex x BSRI Category interaction, $F(1,116) = 6.91$, $p < .01$. Simple effects analyses indicated that androgynous females scored as more internal than stereotypic females, $F(1,116) = 10.09$, $p < .01$.

Factor 5 ("Self-control over internal processes") - a significant main effect of sex, $F(1,116) = 22.12$, $p < .001$, showing males to score more internal than females, and a Sex x BSRI Category interaction, $F(1,116) = 5.79$, $p < .05$. Pairwise comparisons indicated that androgynous females scored significantly more internal than stereotypic females, $F(1,116) = 8.64$, $p < .01$.

Factor 6 ("Control over large-scale social and political events") - a significant main effect of BSRI category, $F(1,116) = 12.34$, $p < .001$, showing that androgynous subjects scored as more internal than stereotypic subjects.

Factor 7 ("Control in immediate social interactions") - significant main effects of sex, $F(1,116) = 5.95$, $p < .05$), and BSRI category, $F(1,116) = 17.46$, $p < .001$, and a significant Sex x BSRI Category interaction, $F(1,116) = 33.89$, $p < .001$. Pairwise comparisons indicated that stereotypic females scored more external than androgynous females, $F(1,116) = 49.99$, $p < .001$, androgynous males, $F(1,116) = 18.99$, $p < .001$, and stereotypic males $F(1,116) = 30.48$, $p < .001$. Also, androgynous

females scored more internal than androgynous males, $F(1,116) = 7.36$, $p < .01$.

Insert Table 1 about here

Discussion

Both attitudinal and behavioral indices demonstrated androgynous females to be the least influenced by the confederates of the social prediction paradigm introduced in the present study. Since the differences were as hypothesized, predictive validity was provided for Bem's Sex Role Inventory (BSRI). Furthermore, the conformity data offer a plausible interpretation for the confusion surrounding the issue of sex differences in the social conformity literature. Specifically, whereas early studies often found females to conform more often than males (e.g. Asch, 1956; Crutchfield, 1955; Nakamura, 1958; Tuddenham, 1958); some later studies have shown no sex differences (e.g. Allen & Levine, 1969; Constanzo & Shaw, 1966; Goldberg, 1970; Sistrunk & McDavid, 1971), and such a discrepancy may reflect a decrease in the proportion of stereotypic females in college populations.

As evidenced by the growing number of women's organizations and the increased coverage of women's issues in the media, societal trends seem to indicate that more and more individuals are questioning traditional sex-role stereotypes. As the number of women defining themselves in less stereotypic ways decreases, the differences between males and females should also be expected to decrease in terms of conforming behavior. It is possible that a preponderance of stereotypic females in the early

conformity studies raised the overall level of conformity for all females compared to males. Hence, it seems clear that sex-role stereotyping is a salient factor in understanding the social conformity literature with regard to sex differences.

The data indicating that androgynous females conformed to a somewhat lesser degree than androgynous males suggests that these individuals may have actually "overreacted" to resist stereotypic sex role expectations. In this case, it may be that the androgynous females were trying on a new role and may have actively resisted conforming because such is typical of the stereotypic feminine role with they have seeming rejected. The questionnaire data supported this speculation in that androgynous females reported significantly less confederate influence in their decisions than did stereotypic females, androgynous males, or stereotypic males.

Both the behavioral and attitudinal measures indicated that stereotypic individuals perceived themselves as being more traditional in their sex-role attitudes than androgynous subjects. However, there were no reliable group differences in terms of amount of support for the women's liberation movement. These results imply that even though the stereotypic subjects rated themselves as relatively traditional in their own sex-role attitudes, they were no less supportive than the androgynous subjects of a social movement at variance with their self-perceptions. It is noteworthy that while none of the groups differed significantly from one another on this item, the average response was only 3.46 on a scale with 1 representing non-supportive and 8 indicating supportive. The relatively low scores on this item reflect a rather apathetic attitude on the part of college students towards the women's liberation movement.

A significant main effect of sex for scores on Rotter's Internal-External Control Scale was observed, indicating that males scored more internal than females. Such a sex difference is typical for perceived locus of control as measured with the Rotter I-E Scale (e.g., Feather, 1975; Lefcourt, 1976; Phares, 1976). The predicted interaction between sex of subject and sex-role adherence for scores on this scale was not observed. However, there was a non-significant tendency for androgynous females to score more internal than stereotypic females (mean number of external choices = 11.2 vs. 12.2).

Coan (1974) suggested that Rotter's scale addressed itself to only a social and political dimension of internality-externality. It is possible that this is only one dimension of perceived locus of control and such a dimension is not sensitive to variations in sex-role expectations. Indeed, significant differences between the two female groups (androgynous and stereotypic) were evident for six of the seven factors on Coan's Personal Opinion Survey (1969), which was designed to measure seven different dimensions of perceived locus of control. Pairwise comparisons of groups showed that androgynous females were significantly more internal than stereotypic females on all but Factor 3. Analysis of the data based on sex of subjects showed males scoring more internal on Factors 2, 3, and 5, but not on Factors 1, 4, 6, and 7. These results are identical to those of Fairchild (Note 1).

Of particular relevance for the present study was Factor 7, "Control in immediate social interactions", since the item represents an attitudinal correlate of conforming behavior. Results indicated that stereotypic females scored as reliably more external (i.e., conforming) than any

other group. An unexpected finding was that androgynous females scored significantly more internal than androgynous males, which again might be explicable by the androgynous females active resistance to behave in a manner consistent with the stereotypic feminine role.

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Table 1

Scores for Factors of Coan's Personal Opinion Survey as a Function of Subject's Sex and Subject's Sex-Role Adherence*

	Sex-Role Adherence				
	Androgynous		Stereotypic		Maximum Score
Factor	Female	Male	Female	Male	
1	9.6	8.6	7.9	8.3	12
2	8.9	9.1	5.7	11.2	16
3	7.2	8.3	7.1	9.9	17
4	15.7	14.1	12.1	14.8	22
5	9.8	11.2	7.3	11.6	19
6	14.6	14.1	11.1	11.9	20
7	9.9	8.0	5.0	8.8	14

*The higher the score the more internal.

Factor 1: "Achievement through Conscientious Effort"

Factor 2: "Personal Confidence in the Ability to Achieve Mastery"

Factor 3: "Capacity of Mankind to Control its Destiny vs. Supernatural Power"

Factor 4: "Successful Planning and Organization"

Factor 5: "Self-Control over Internal Processes"

Factor 6: "Control over Large-Scale Social and Political Events"

Factor 7: "Control in Immediate Social Interactions"

Footnotes

[1]This Article was adapted from the first author's master's thesis, that was supervised by the second author. The study was supported by National Institute of Mental Health Grant #MH27219 awarded to the second author. Guidance and suggestions from the other members of the first author's thesis committee, Jerard F. Kehoe, John T. Sappington, Allen I. Schiffenbauer, and Marsha A. Weinraub, are gratefully acknowledged.

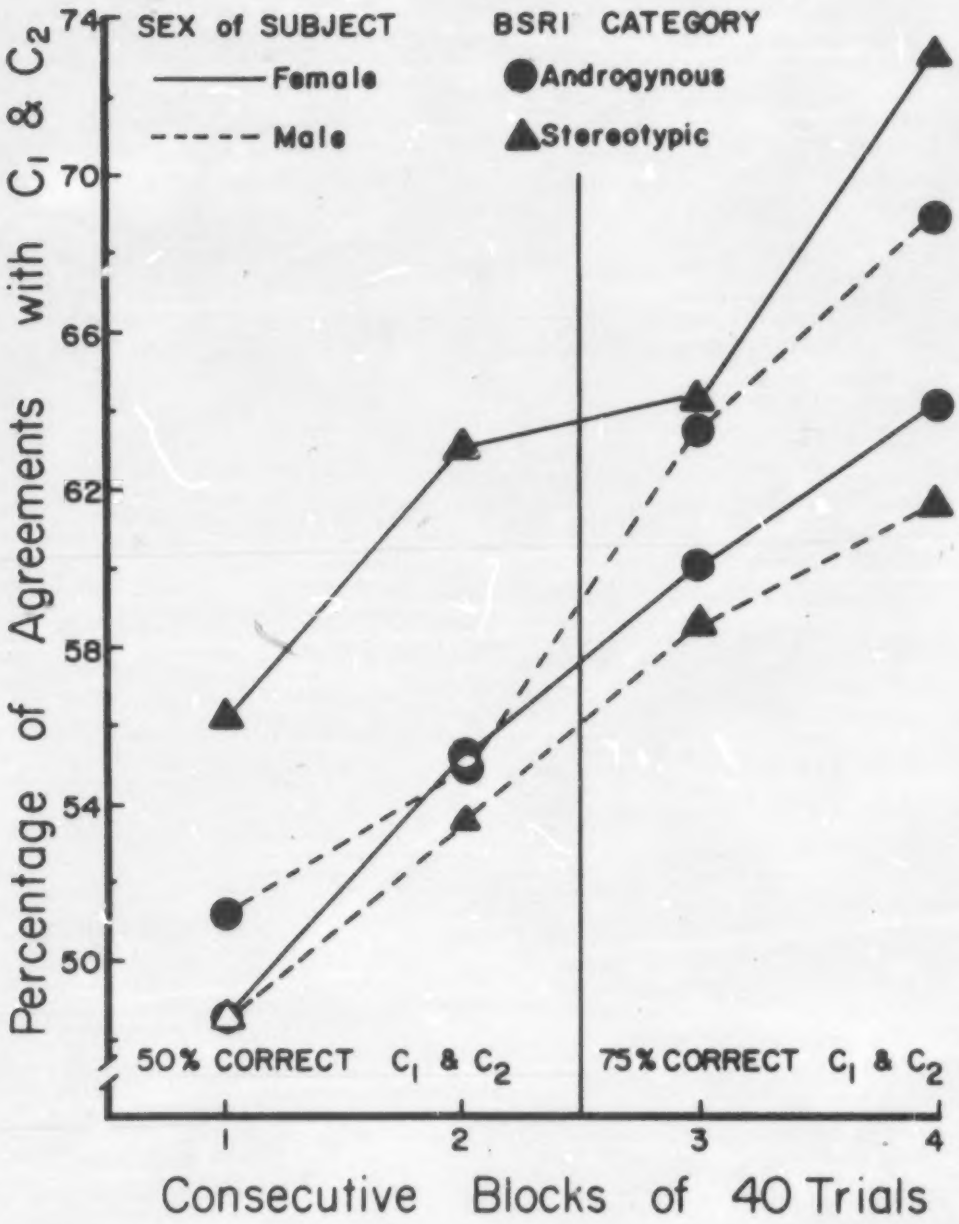
[2]Reprints may be obtained from E. Scott Geller, Department of Psychology, Virginia Polytechnic Institute and State University, Blacksburg, Virginia 24061.

[3]Different colored backgrounds were used to enhance the suggestion given in the task instructions that there could be a "system" for maximizing the number of correct stimulus predictions.

[4]Copies of the complete scale will be provided upon request to the second author.

Figure Captions

Figure 1. Percent agreement with both confederates as a function of subject's sex, subject's sex-role stereotype, and 40-trial blocks


SEX of SUBJECT
Female
Male
BSRI CATEGORY
Androgynous
Stereotypic
Percentage of Agreements with C_1 & C_2
74
70
66
62
58
54
50
50% CORRECT C_1 & C_2
75% CORRECT C_1 & C_2
1
2
3
4
Consecutive Blocks of 40 Trials